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G. F. G. HAYTER
PELORUS BOATYARD
HAVELOCK

SYSTEM OF BUOYAGE AND BEACONAGE FOR NEW ZEALAND

MARINE DEPARTMENT, WELLINGTON, NEW ZEALAND

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Price 45c

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PREFACE

This brochure explains the buoyage and beaconage system operating in New Zealand waters. It contains the mandatory requirements for the establishment of aids to navigation in harbours and their approach channels and also describes the requirements for oceanographical stations that may be established around our seaboard.

It will be found useful to all navigators and to those interested in the sea and also to those studying for nautical examinations. Harbour authorities will find the brochure a useful reference guide when wishing to determine the shape, colour, characteristic, etc., of any navigational aid that they intend to establish.

The Department in 1954 introduced the method of using reflectorised strip on unlighted buoys and beacons to enable them to be located at night. The standard system formulated by the Department is also described in this brochure.

Marine Department
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1. SYSTEM OF BUOYAGE AND BEACONAGE

1.1. General

The waters of New Zealand and adjacent islands are marked for safe navigation by the *lateral system* of buoyage and beaconage.

This system conforms with the International Uniform System of Maritime Buoyage and Beaconage agreed to at the London Conferences of 1933 and 1936.

It employs a simple arrangement of colours, shapes, numbers, and light characteristics to show the side on which a buoy or beacon should be passed when proceeding in a given direction. The characteristics are determined by the position of the buoy or beacon with respect to the navigable channels as the channels are entered from seaward with the main flood stream.

In addition to the lateral system of marking, many unlighted buoys and beacons are fitted with reflectorised strip. This strip facilitates the locating of the buoys and beacons at night by means of a searchlight or powerful flashlight or torch.

Also described in this publication are various types of Oceanographic Stations. The types classified are those recommended by the Inter-Governmental Maritime Consultative Organisation (IMCO), London in 1964.

1.2. Definitions

1.2.1. The *lateral* system is one generally used for marking, from seaward, well defined fairways in harbours, rivers, estuaries, or other waterways.

1.2.2. The marks to which this system applies include all *fixed* and *floating* marks other than lighthouses and lightships properly so called, serving to indicate:

(a) The lateral limits and axes of navigable channels.
(b) Natural dangers.
(c) Other obstructions, such as wrecks.
(d) Certain other points of importance to the mariner.

1.2.3. The purpose of any particular mark is indicated primarily by its shape and colour; topmarks and lights, when fitted, serve as additional indications.

1.2.4. The term *starboard-hand* denotes that the mark is to be left upon the mariner's starboard hand (right hand) when he is going in the direction of the main stream of the flood tide or entering a channel or harbour from seaward. *Port-hand* denotes that the mark is to be left to port (left hand) under the same circumstances.

1.2.5. The term *beacon* includes every vertical spar, pole, or pile which is not floating, coloured in accordance with the lateral system, or carrying a topmark in accordance with that system in order to mark a channel or dangers to navigation.

1.2.6. The term *buoy* includes every floating mark, other than lightships, having the shape, colour, and characteristics of the lateral system and includes spar buoys.

1.3. Method of Characterising Marks by Shape

The characteristics of the principal types of fixed or floating marks are shown either by the shape of the upper part of the body of the mark, or by the shape of a superstructure secured to the mark.

2. LATERAL SYSTEM

2.1. Principal Types of Marks, Shapes of

The principal types of marks employed as far as the shape of their upper parts is concerned are as follows:

Cone, can, sphere, or spar.

2.2. Shapes of Topmarks

The topmarks for which specific provision is made in the lateral system have the appearance of one of the following:

A cone, a diamond, a can, a St. George's cross, a sphere, or a "T" shape.

2.3. Marking Sides of Channels

2.3.1. Marks: Marks on the two sides of a channel are characterised as follows:

Starboard-hand marks	Shape or type ..	Cone or spar or pile beacon.
	Colour.. ..	Black, or for purposes of differentiation in the case of conical marks, black and white chequers; in the case of spars, for purposes of differentiation, black with upper part white.
	Topmark (if any)	Cone, point upwards, coloured black, or for the purpose of differentiation, a diamond coloured black, except at the entrance of a channel.
Port-hand marks	Shape or type ..	Can or spar or pile beacon.
	Colour.. ..	Red, or for purposes of differentiation in the case of can-shaped marks, red and white chequers.
	Topmark (if any)	Can, coloured red, or for the purpose of differentiation a "T" shape coloured red, except at the entrance of a channel.

N.B.—The use of yellow instead of white in the chequers is permitted in secondary channels (channels which are alternatives to main channels).

2.3.2. Lights: Lights on marks on the two sides of a channel are differentiated by colour or, where preferred, by rhythm, or by a combination of both rhythm and colour, viz:

Starboard-hand Lights: White lights showing one, three, or five flashes or occultations; green lights showing single or four flashes (thus excluding green lights of characters allocated to the marking of wrecks), or both white lights and green lights with the above characteristics, on different marks respectively.

Port-hand Lights: White lights showing two, four, or six flashes or occultations; red lights showing any number of flashes or occultations up to four, or both white lights and red lights with the above characteristics, on different marks respectively.

2.3.3. Numbering or Lettering: Buoys or beacons marking the same side of a channel, estuary, river, or tideway may be distinguished from each other by numbers painted conspicuously on them commencing from seaward, odd numbers to starboard, even numbers to port, or by letters in alphabetical order, commencing from seaward.

Numbers and letters shall be white and as large as practicable without interference with the distinctive colouring of the mark.

2.4. Marking of Middle Ground, Bifurcation, or Junction Marks

2.4.1. Marks: Marks at the end of middle-grounds have the following characteristics:

Main channel to right	Shape or type ..	Sphere or spar or pile beacon.
	Colour ..	Red and white horizontal bands.
	Topmarks (if any)	*Outer* end, a can painted red.
		Inner end, a "T" shape, painted red.
Main channel to left	Shape or type ..	Sphere or spar or pile beacon.
	Colour ..	Black and white horizontal bands.
	Topmarks (if any)	*Outer* end, a cone point up, painted black.
		Inner end, a diamond, painted black.
Channels of equal importance	Shape or type ..	Sphere or spar or pile beacon.
	Colour ..	Red and white horizontal bands.
	Topmarks (if any)	*Outer* end, a sphere, painted red.
		Inner end, a St. George's cross, painted red.

In the case of spars or pile beacons, marking middle-grounds, a spherical topmark is placed immediately below either one of the topmarks described above, and is coloured red or black as the case may be.

2.4.2. Lights: Lights on middle-ground marks shall, as far as possible, be distinctive, provided that no colours are used other than white, red, or green and provided also that the rhythm shall not be such as to lead to uncertainty concerning the side on which the marks shall be passed.

2.5. Mid-channel Marks

These serve to indicate the deep water channel or fairway and may be passed on either hand:

Shape	As far as practicable, distinctive and different from the principal characteristic shape (conical, can, and spherical).
Colour	Black and white or red and white vertical stripes.
Topmark (if any) ..	Of a distinctive shape other than cone point upwards, can or sphere.
Light (if any) ..	Of a character different from neighbouring lights on marks at the sides of the channel.

2.6. Isolated Danger Marks

These serve to mark a danger which can be adequately indicated by a single mark which may be passed on either hand:

Shape	Sphere or spar or pile beacon.
Colour	Wide black and red horizontal bands separated by narrow white band.
Topmark (if any) ..	Sphere, painted black or red or half black and half red horizontally.
Light (if any) ..	White or red with a flashing character.

2.7. Landfall Marks

These serve to indicate the seaward approach to a harbour, river, or estuary:

Shape	In accordance with channel markings.
Colour	Black and white or red and white vertical stripes.
Light (if any) ..	Flashing character.

2.8. Quarantine-ground Marks

Shape	Optional, but shall not be misleading having regard to channel markings.
Colour	Yellow.

2.9. Outfall and Spoil-ground Marks

Shape	Optional, but shall not be misleading having regard to channel markings.
Colour	Upper half yellow, lower half black.

2.10. Marking of Areas Used for Naval, Military, or Air Forces Practice Purposes

Shape	.. ..	Optional, but generally of the appropriate shape, as for channel marking.
Colour	.. ..	White with two blue stripes intersecting at right angles at the upper extremity of the vertical axis of the mark and extending to the water line thus representing a cross when observed from above, in combination, if desired, with red lettering "DA" indicating a dangerous area.
Light (if any)	..	White with a flashing character.

2.11. Cable Buoys

Shape	.. ..	Optional, but shall not be misleading having regard to channel markings.
Colour	.. ..	Black with word "Telegraph" in white letters.

2.12. Mooring Buoys

Shape	.. ..	Optional, but shall not be misleading having regard to channel markings.
Colour	.. ..	Optional, other than green.

2.13. Special Shapes

Buoys having a tall central structure on a broad base shall be called pillar buoys and like other special buoys, such as bell buoys and whistling buoys, shall be placed to mark special positions which will be fully described when the buoys are placed. Lights on these buoys shall be of a flashing character and the colour and rhythm shall not be such as to lead to uncertainty concerning the side on which the marks shall be passed.

3. MISCELLANEOUS PROVISIONS

3.1. Topmarks

For purposes of differentiation where there are numerous neighbouring and similar marks, additional topmarks of the same shape may be used on the same mark.

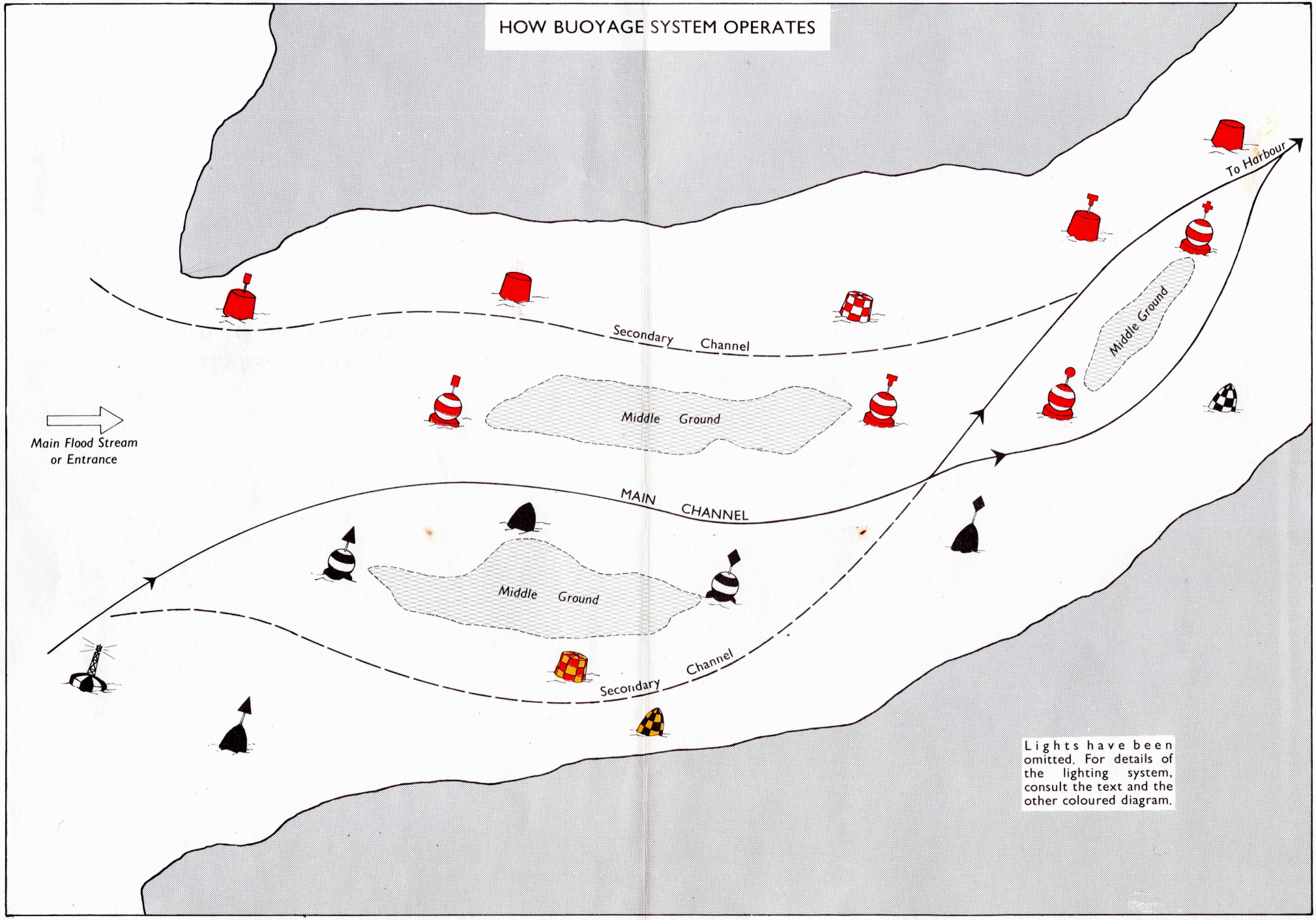
3.2. Fixed Supports for Lights and Topmarks

Fixed supports for lights and topmarks shall, as far as practicable, be painted in the colour characteristic of the position of the light.

3.3. Reflectors

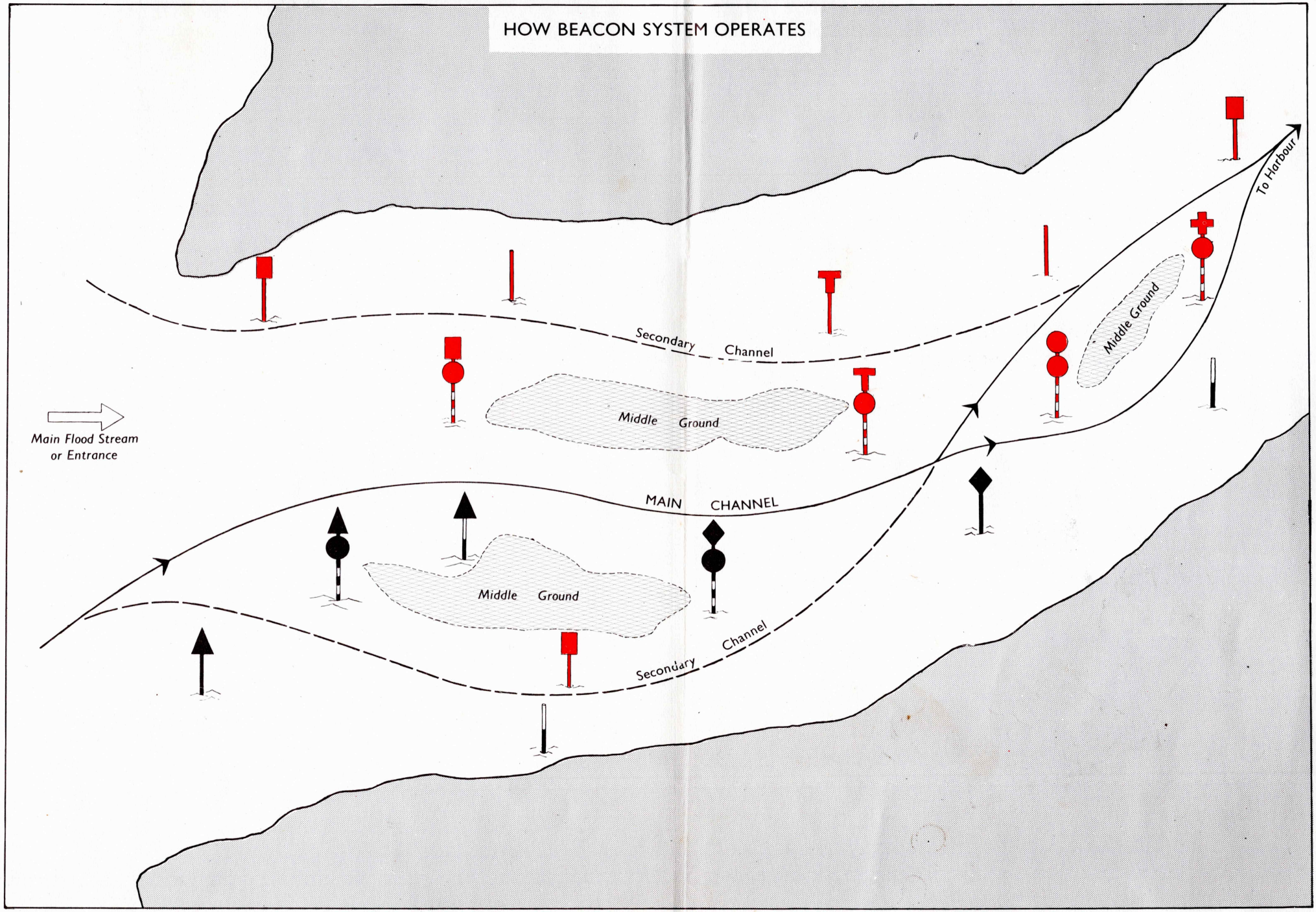
When certain aids to navigation are fitted with light reflecting material to assist their location in darkness, the colours of such reflective material shall have the same significance as the colours of the lights they would otherwise be permitted to carry. For national system see paragraph 5.

HOW THE BUOYAGE SYSTEM OPERATES


HOW BUOYAGE SYSTEM OPERATES
To Harbour
Secondary Channel
Middle Ground
Middle Ground
Main Flood Stream or Entrance
MAIN CHANNEL
Middle Ground
Secondary Channel
Lights have been omitted. For details of the lighting system, consult the text and the other coloured diagram.

Prepared by the Hydrographic Office, Royal New Zealand Navy, for the Marine Dept., Wellington.

A. R. Shearer, Government Printer, Wellington, New Zealand, 1971.



Prepared by the Hydrographic Office, Royal New Zealand Navy, for the Marine Dept., Wellington.

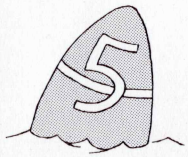
A. R. Shearer, Government Printer, Wellington, New Zealand, 1971

HOW THE BEACON SYSTEM OPERATES

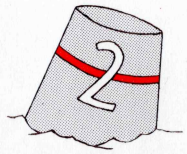
THE SYSTEM
FOR MARKING BUOYS BEACONS AND TOPMARKS
WITH REFLECTORISED STRIP

THE SYSTEM OF MARKING BUOYS AND TOPMARKS WITH REFLECTORISED STRIP

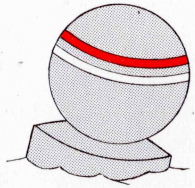
STARBOARD HAND



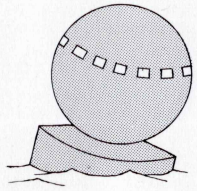
PORT HAND



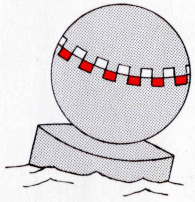
ISOLATED DANGER



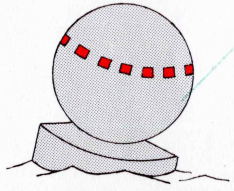
MAIN CHANNEL TO LEFT

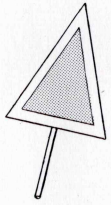


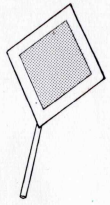
CHANNEL OF EQUAL IMPORTANCE

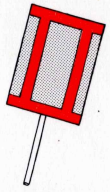


MAIN CHANNEL TO RIGHT

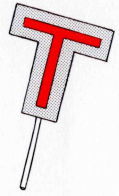


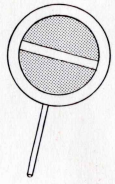


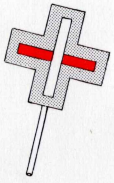




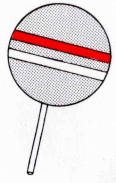
MINIMUM 5 VERTICAL STRIPES







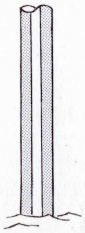
ISOLATED DANGER



Prepared by the Hydrographic Office, Royal New Zealand Navy, for the Marine Dept., Wellington.

THE SYSTEM OF MARKING BEACONS AND TOPMARKS WITH REFLECTORISED STRIP

STARBOARD HAND



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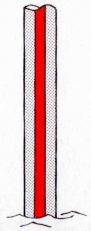

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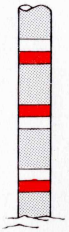
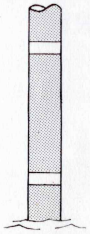
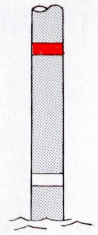


MAIN CHANNEL TO LEFT



CHANNEL OF EQUAL IMPORTANCE



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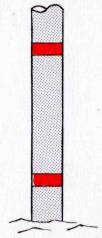

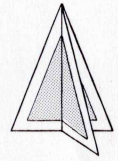

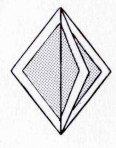

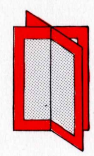

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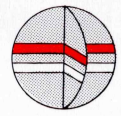
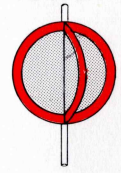


MAIN CHANNEL TO LEFT

CHANNEL OF EQUAL IMPORTANCE

MAIN CHANNEL TO RIGHT



A.R. Shearer, Government Printer, Wellington, New Zealand, 1971.

THE "LATERAL SYSTEM" OF BUOYAGE AND BEACONAGE

STARBOARD HAND BUOYS AND BEACONS

STARBOARD HAND TOP MARKS OPTIONAL BUT
DIAMOND NOT AT ENTRANCE TO A CHANNEL

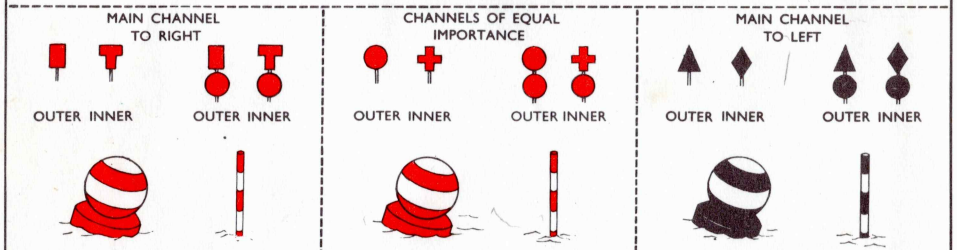
LIGHTS 1, 3 OR 5 WHITE FLASHES OR, 1 OR 4 GREEN FLASHES

PORT HAND BUOYS AND BEACONS

PORT HAND TOP MARKS OPTIONAL BUT TEE NOT
AT ENTRANCE TO A CHANNEL

LIGHTS 1 TO 4 RED FLASHES, OR 2, 4 OR 6 WHITE FLASHES

MIDDLE GROUND BUOYS AND BEACONS



LIGHTS RED, WHITE OR GREEN AND DISTINCTIVE

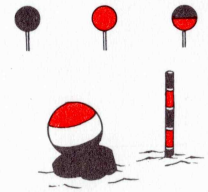
MID-CHANNEL BUOYS

(EXAMPLES ONLY)
SHAPE AND TOP MARKS OPTIONAL, BUT DISTINCTIVE
FROM CONE, CAN OR SPHERE
LIGHTS DISTINCTIVE FROM OTHER CHANNEL LIGHTS

LANDFALL BUOYS

(EXAMPLES ONLY)
SHAPE IN ACCORDANCE WITH RULES
FOR CHANNEL MARKING, FLASHING LIGHT

Prepared by the Hydrographic Office, Royal New Zealand Navy, for the Marine Dept., Wellington.



ISOLATED DANGER BUOY AND BEACON

TOP MARKS OPTIONAL
FLASHING LIGHT WHITE OR RED

LIGHT VESSEL

MOORING BUOY

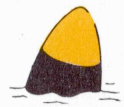
SHAPE OPTIONAL
COLOUR OPTIONAL, OTHER THAN GREEN

DANGER AREA

SHAPE OPTIONAL

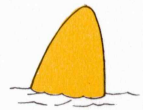
TELEGRAPH CABLE BUOY

SHAPE OPTIONAL



OUTFALL AND SPOILGROUND BUOY

SHAPE OPTIONAL



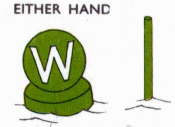
QUARANTINE BUOY

SHAPE OPTIONAL

TO BE PASSED ON PORT HAND

PORT HAND 2 GREEN FLASHES

TO BE PASSED ON EITHER HAND



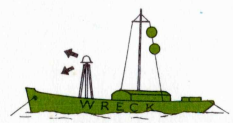
EITHER HAND 1 GREEN OCCULTING

TO BE PASSED ON STARBOARD HAND

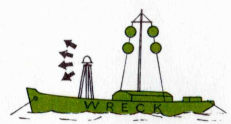
STARBOARD HAND 3 GREEN FLASHES

WRECK BUOYS AND BEACONS

TO BE PASSED ON PORT HAND



TO BE PASSED ON EITHER HAND



TO BE PASSED ON STARBOARD HAND

WRECK-MARKING VESSELS

DURING RESTRICTED VISIBILITY, BELL SOUNDS EVERY 30 SECONDS
2 STROKES FOR PORT HAND 4 STROKES FOR EITHER HAND 3 STROKES FOR STARBOARD HAND
GREEN LIGHTS ARE HOISTED IN PLACE OF SHAPES AT NIGHT

A. R. Shearer, Government Printer, Wellington, New Zealand, 1971.

THE "LATERAL SYSTEM" OF BUOYAGE AND BEACONAGE

3.4. Undefined Marks

Marks whose purpose is not defined in this publication shall be coloured in such a way as not to lead to confusion with marks whose purpose is defined.

3.5. Fixed Lights

The use of fixed lights, especially white lights, on fixed and floating marks which serve the sole purpose of the marking of a channel, should be avoided whenever practicable.

3.6. Harbour Lights

When lights are placed on external permanent works at the entrance to harbours opening directly on to the sea, whose principal purpose is to mark the channel, the colour and rhythm shall, as far as possible, be in accordance with the provisions laid down in paragraph 2.3.2. This need not be applied in the case of harbours which do not open directly on to the sea or in the case of lights situated within harbours if, in the opinion of the harbour authorities, local conditions render other characteristics preferable.

This paragraph does not relate to other harbour lights which are placed on fixed supports and which cannot be confused with lights forming part of the buoyage system properly so called, e.g., illuminating lights on breakwaters, wharves, etc.

In accordance with the recommendation of the International Association of Lighthouse Authorities on the colours of lights for navigation aids (October 1969) harbour authorities should note that orange should not be used.

3.7. Coloured Sector Lights

Where coloured sectors are used in lights forming part of the lateral system their colours shall, when circumstances permit, be in accordance with the provisions laid down in paragraph 2.3.2.

In cases where this is not considered practicable, the colours should preferably be allocated in accordance with a definite rule laid down for a particular region, in order that the sectors may be arranged in the same manner when the circumstances are similar.

3.8. Leading Lights

Where a leading light or lights might be mistaken for a light or lights forming part of the lateral system, the colour shall be in accordance with one or other of the principles laid down under paragraph 3.7.

3.9. Sound Signal Devices

If practicable, fixed and floating marks fitted with sound signal devices shall have characteristics appropriate to their position in accordance with the lateral system.

3.10. Light Vessels.

Where it is necessary for a mark or light to be seen from a greater distance, a light vessel may be used instead.

They shall be painted red with their name in white letters on the sides of the hull.

3.11. Radar Reflectors

Buoys and beacons may be fitted with corner radar reflectors designed into the superstructure to improve radar echoes, provided such reflectors if resembling topmarks, do not cause confusion on which side to pass.

3.12. Caution

In certain cases slight modification to the lateral system may be found where local circumstances make it desirable.

3.13. Water-ski Lane Marker Buoys

Buoys shall be either barrel, drum, or spherical in shape, painted bright orange with a vertical black stripe. When lanes, after trial, are established in a semi-permanent manner, it is desirable in addition and whenever practicable, to mark each side with two transit posts at least 8 ft high and not less than 10 ft and not more than 20 ft apart, painted with 12 in. bright orange and black horizontal bands, the first post being placed at high water mark.

Notice boards warning bathers should measure not less than 2 ft 6 in. by 2 ft and be painted bright orange with black lettering.

3.14. Surfing Lane Transit Posts

Each side shall be marked by two transit posts at least 8 ft high, and not less than 10 ft and not more than 20 ft apart, painted with 12 in. yellow or bright orange and royal blue horizontal bands. The notice boards should be royal blue with a yellow or bright orange diagonal stripe from top left to bottom right. Suitable wording etc., indicating clearly the function of the signs and the area covered should be lettered in yellow or bright orange.

4. MARKING OF WRECKS

4.1. General Provisions

4.1.1. Green is the colour used for all purposes connected with wreck marking.

4.1.2. Buoys have the letter "W" on both sides in white letters on a green ground.

4.1.3. Wreck marking vessels have the word "Wreck" on the sides of the hull in white letters on a green ground. They will not show anchor lights.

4.1.4. Spars or pile beacons, if used, shall have the lower half coloured red or black as the case may be, and the top half green.

4.1.5. Marks will, where practicable, be on the side of the wreck which is next to mid channel. Should the wreck be in mid channel, it shall be marked both ends if deemed warranted, otherwise it shall be marked in accordance with the foregoing provisions.

4.2. Characteristics

4.2.1. Wreck-marking Buoys and Beacons

To be passed on the starboard-hand:

Shape	.. ..	Cone or spar or pile beacon.
Colour	.. ..	Green. In the case of spars or pile beacons, for purposes of differentiation green with lower half black.
Light (if any)	..	Green triple-flashing.

To be passed on the port-hand:

Shape	.. ..	Can or spar or pile beacon.
Colour	.. ..	Green. In the case of spars or pile beacons, for purposes of differentiation green with lower half red.
Light (if any)	..	Green double-flashing.

To be passed on either hand:

Shape	.. ..	Sphere or spar or pile beacon.
Colour	.. ..	Green.
Light (if any)	..	Green, single occulting.

4.2.2. Wreck-marking Vessels (National System)

To be passed on the port-hand:

By Day: Two green balls in a vertical line not less than 6 ft apart from the end of a yardarm, the lower ball to be not less than 15 ft above the hull.

By Night: Two fixed green lights in place of the balls.

To be passed on the starboard-hand:

By Day: Three green balls in a vertical line not less than 6 ft apart from the end of a yardarm, the lower ball to be not less than 9 ft above the hull.

By Night: Three fixed green lights in place of the balls.

To be passed on either hand:

By Day: Four green balls, two in a vertical line on each side of a yardarm, one over the other, not less than 6 ft apart, with a horizontal distance between the balls of not less than 15 ft and not more than 25 ft. The height of the two lower balls to be not less than 15 ft above the hull.

By Night: Four fixed green lights in place of the balls.

4.2.3. A wreck-marking vessel shall during fog, mist, falling snow, heavy rain storms, or any other condition similarly restricting visibility, whether by day or night, ring a deep-toned bell at intervals of not more than 30 seconds as follows:

(i) To be passed on port-hand: Two strokes in succession.

(ii) To be passed on starboard-hand: Three strokes in succession.

(iii) To be passed on either-hand: Four strokes in succession.

5. MARKING OF BUOYS AND BEACONS WITH REFLECTORISED STRIP

(National System)

5.1. The use of reflectorised strip to assist in the location of unlighted buoys and beacons at night, is *optional.* When used, it shall be fitted in the manner described below and shall be additional to the markings described elsewhere in this publication.

5.1.1. Size of Strip: All reflectorised strip shall be not less than 1 in. in width on *small* buoys, beacons, and topmarks, and not less than 2 in. in width on other aids.

5.1.2. Colours of Strip: Two colours shall be used, *white* for all starboard hand marks and *red* for all port hand marks.

5.1.3. Numbering or Lettering: White reflectorised strip shall be used when marking numbers or alphabetical letters on buoys or beacons.

5.1.4. Middle-ground Beacons: Horizontal bands of reflectorised strip shall be used on middle-ground, bifurcation or junction pile beacons and shall be placed 2 ft apart.

5.1.5. Channel Beacons: Reflectorised strip used on channel pile beacons or structures shall be placed vertically in the manner depicted in the accompanying diagram.

5.1.6. Buoys: Horizontal bands of reflectorised strip used on buoys shall be placed midway between the top of the buoy and the water level.

5.1.7. Topmarks: Reflectorised strip shall be placed on topmarks in the manner depicted in the accompanying diagram.

6. MARKING OF OCEANOGRAPHIC STATIONS

6.1. Ocean Data Acquisition Systems (ODAS)

At the present time, considerable expansion is taking place in the science of oceanography which will in the long term confer many benefits on the mariner and other users of the oceans. Two organisations (the World

Meteorological Organisation and the Intergovernmental Oceanographic Commission) foresee, in the future, a network of buoy and ship stations throughout the world's oceans collecting and reporting oceanographic data.

6.2. The ODAS (Ocean Data Acquisition Systems) includes a large range of collecting devices from weather ships to plastic envelopes and drift bottles. Those of the greatest concern to the mariner are instrumented buoys systems. These systems may be expected to become more numerous each year.

These buoy systems vary considerably in size and are divided into two categories—moored and free floating. As far as possible the position of the moored buoys will always be widely promulgated and if considered to be of a permanent enough nature, will be charted. The recommendations for the markings of ODAS buoys are as follows:

6.2.1. Standard colours—yellow and red in wide stripes. (Vertical for moored systems and horizontal for free-floating ones.)

6.2.2. Flashing identification lights clearly distinct from those used in navigational buoys and other aids to navigation.

Colour—white bluish, high intensity, corresponding to the light of a xenon tube.

Repetition rate—short period of quick flashes of a few seconds duration (2–5 seconds) followed by a longer period of darkness (15–18 seconds) the whole cycle being no less than 20 seconds.

6.2.3. Radar reflectors should be fitted unless the buoy is of such size and shape as to be a good radar target.

6.3. These ODAS buoys may be met with in unexpected areas, often in deep water where navigation buoys would not be found. The mariner's first reaction may be that the buoy is lost and adrift and NO ATTEMPT SHOULD BE MADE AT RECOVERY unless it is clear that the buoy is of the moored type (vertical red and yellow stripes) and is adrift.

IMPORTANT—Valuable instruments are often suspended beneath these buoy systems or attached to mooring lines; cases have occurred of the mooring being cut close beneath the buoy by unauthorised salvors, with the loss of the most valuable part of the system.

6.4. Mariners are requested to report the positions of these systems to the Secretary for Marine, Wellington, when encountered, together if possible with their identity code numbers which should be prominently displayed.

7. MARKINGS OF BRIDGES OVER STRAITS AND ESTUARIES

7.1. Non-hazard Bridges

Channels leading under bridges of sufficient height and without piers in the navigable channel are marked according to the normal regulations for navigational aids.

7.2. Other Bridges

7.2.1. Visual marks: The following system is used when entering from seaward.

N.B.—When the direction "entering from seaward" is not obvious, this direction is fixed arbitrarily by the authority involved.

7.2.2. Colours for daymarks:

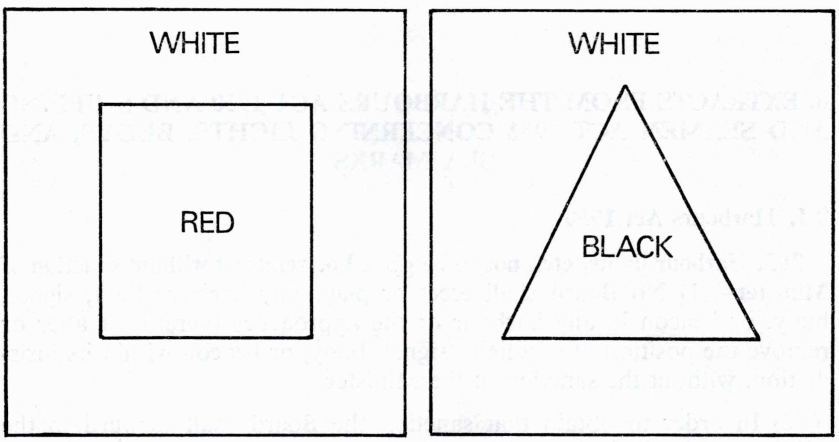
Black to starboard.
Red to port.

7.2.3. Colours for Lights:

Green to starboard.
Red to port.

7.2.4. Daymarks (if they are considered necessary):

To starboard: A white panel with a solid black equilateral triangle point upwards in the middle.
To port: A white panel with a solid red rectangle in the middle.



To port To starboard

7.2.5. If navigation is possible in the full passage span, the marks are located on the bridge piers. If navigation is possible only in part of the span, the marks are located under the span, indicating the limits of the navigable channel.

7.2.6. Lights: Either red or green navigational lights, fixed or flashing according to local circumstances, or floodlighting of daymarks.

If navigation is possible in the full passage span the lights are located on the bridge piers. If navigation is possible only in part of the span, the lights are located under the span indicating the limits of the navigable

channel. A white isophase or quick flashing light may be used to mark the best point of passage. If there is more than one navigable channel under the bridge, the same system is used for each channel.

Floodlighting of daymarks is used when it is more convenient.

7.3. Fog Signals

One or more fog signals may be used to warn the navigator of the presence of a bridge.

Any type of fog signal may be used to mark a bridge, but if a number of fog signals are placed at different points of a bridge their characters are to be different from each other.

7.4. Radar Marking

Normally the piers cannot be distinguished from the bridge span on the radar screen.

Radar reflectors marking the passage span may be located either on dolphins, on buoys, or on poles fixed to the bridge structure. In any case the distance between the bridge and the reflectors must be great enough so that the reflectors may be clearly distinguished.

8. EXTRACTS FROM THE HARBOURS ACT 1950 AND SHIPPING AND SEAMEN ACT 1952 CONCERNING LIGHTS, BUOYS, AND SEA MARKS

8.1. Harbours Act 1950

203. Harbour lights, etc., not to be placed or removed without sanction of Minister—(1) No Board shall erect or place any harbour light, signal, buoy, or beacon in any harbour or the approaches thereto, or alter or remove the position of any light, signal, buoy, or beacon within its jurisdiction, without the sanction of the Minister.

(2) In order to obtain that sanction the Board shall forward to the Minister a detailed plan fully specifying the position and nature of the light proposed to be erected or of the work proposed to be undertaken in placing or removing any light, signal, buoy, or beacon; and the Minister shall have power to give any directions he thinks fit in relation to the matter by granting or withholding his sanction either wholly or partially and either with or without modification.

204. Marine Department to inform harbour authorities of decision of Minister—The Marine Department shall forthwith communicate the directions given by the Minister in relation to the matters aforesaid to the Board affected thereby, and the Board on receipt of those directions shall be bound to act in conformity therewith, and to do or forbear from doing anything thereby directed to be done or forborne.

205. Minister may appoint persons to inspect buoys and beacons—(1) If the Minister considers that any harbour light, signal, buoy, beacon, or other sea mark under the management of any Board, or any work connected therewith, is inefficient, or improperly placed or managed, or unnecessary, he may authorise some officer of the Marine Department to inspect the same.

(2) Any officer so authorised may inspect the same accordingly, and make such inquiries in respect thereof and of the management thereof as he thinks fit; and every person having the care of the harbour light, signal, buoy, beacon, or other sea mark, or concerned in the management thereof, shall furnish all such information and explanations in relation thereto as that officer may require.

206. Power of Minister as to lights, buoys, and beacons—(1) The Board shall, as and when required by the Minister, erect lights, lay down buoys and beacons, and replace, remove, or discontinue any harbour light, signal, buoy, beacon, or other sea mark, or make any variation in the character of the same or in the mode of exhibiting the same.

(2) If the Board fails or neglects to comply with any such requisition within a reasonable period to be stated in the requisition, the Minister may take all such steps and do all such acts as may be necessary to give effect to the requisition, and the cost and charges of so doing shall be a debt due from the Board to the Crown, and may be recovered accordingly.

207. Prevention of lights liable to be confused with harbour lights, etc.—(1) Where any fire, light, or sign is burnt or exhibited at such a place (whether within or outside the limits of a harbour) or in such a manner as to be liable to be mistaken for a harbour light, signal, buoy, beacon, or other sea mark under the management of any Board, the Board may serve a notice on the owner of the place where the fire, light, or sign is burnt or exhibited, or on the person having charge of the fire, light, or sign, directing that owner or person within a reasonable time, to be specified in the notice, to take effectual means for extinguishing, removing, or screening the fire, light, or sign, and for preventing for the future any similar fire, light, or sign.

(2) The notice may be served either personally or by delivery at the place of abode of the person to be served, or by affixing it in some conspicuous spot near the fire, light, or sign to which the notice relates.

(3) Every owner or person on whom a notice is served under this section commits an offence against this Act who fails without reasonable cause to comply with the directions contained in the notice and is also guilty of a common nuisance, and in addition to any other penalties or liabilities he may incur, shall be liable for each offence to a fine not exceeding $200.

(4) If any owner or person on whom a notice under this section is served neglects for a period of 7 days to extinguish, remove, or effectually screen the fire, light, or sign mentioned in the notice, the Board may, by

its servants or workmen, enter upon the place where the fire, light, or sign is and forthwith extinguish, remove, or screen it, doing no unnecessary damage; and may recover the expenses incurred in so doing from the owner or person on whom the notice has been served as a debt due to the Board.

8.2. Shipping and Seamen Act 1952

372. General Management: Minister to have superintendence of lighthouses—(1) Subject to the provisions of this Part of this Act and subject also to sections 203 to 207 of the Harbours Act 1950, the superintendence and management of all lighthouses and buoys or beacons on or near the coasts of New Zealand and the adjacent seas and islands shall be vested in the Minister.

(2) The powers conferred on the Minister by this Part of this Act shall be in addition to, and not in substitution for, the powers conferred by the Harbours Act 1950 or any other enactment.

373. Construction of Lighthouses, etc.: Powers of Minister—(1) Without limiting the generality of the last preceding section, the Minister shall have power—

(a) To erect or place any lighthouse, with all requisite works, roads, and appurtenances:

(b) To add to, alter, or remove any lighthouse:

(c) To erect or place any buoy or beacon, or alter or remove any buoy or beacon:

(d) To vary the character of any lighthouse, or the mode of exhibiting lights therein.

(2) Any land which may be necessary for the exercise of any of the foregoing powers or for the maintenance of any lighthouse or lighthouse property or the works, roads, and appurtenances thereof, or of any buoy or beacon, or for the residence of any lightkeeper or other person employed in or in connection with the maintenance or management of any such lighthouse or other property as aforesaid, may be taken or otherwise acquired under and subject to the provisions of the Public Works Act 1928.

374. Inspection of lighthouses—(1) The Minister shall make such arrangements as he deems necessary for the inspection of lighthouses and buoys or beacons, whether or not any such lighthouse or buoy or beacon is under the management of any Harbour Board or other local authority or person.

(2) Any officer of the Department or other person who is authorised by the Minister for that purpose either generally or specially may inspect and examine any lighthouse or buoy or beacon which is under the management of any Harbour Board or other local authority or person, and may for that purpose enter, with such workmen or other assistants as he may deem necessary, any such lighthouse and any premises and property appurtenant thereto.

379. Offences in Connection with Lighthouses, etc.: Injuring lights, etc.—(1) Every person commits an offence against this Act who wilfully or negligently—

(a) Injures any lighthouse or the lights exhibited therein, or any buoy or beacon; or

(b) Removes, alters, or destroys any lightship or any buoy or beacon; or

(c) Rides by, makes fast to, or runs foul of any lightship or any buoy or beacon.

(2) Any penalty imposed in respect of an offence under the last preceding subsection shall be in addition to the liability of the offender for the expenses of any damage caused.

(3) If any ship injures, destroys, or runs foul of any lighthouse or any buoy or beacon, the master of that ship, and if any lighthouse or any buoy or beacon is otherwise injured or altered, the person who commits or is responsible for that injury or alteration, shall, as soon as practicable, having regard to the means of communication available to him, report that occurrence to the Secretary, giving as accurate an estimate as is possible in the circumstances of any damage caused; and, if any master or other person fails to comply with the requirements of this subsection, he commits an offence against this Act, and shall, in addition to any other liability which he may have incurred, be liable in respect of each such offence to a fine not exceeding $200.

380. Prevention of false lights—(1) Where any fire or light is burnt or exhibited at such place or in such manner as to be liable to be mistaken for a light proceeding from a lighthouse, the Minister, or some person by his direction, may serve a notice upon the owner of the place where the fire or light is burnt or exhibited or, on the person having the charge of the fire or light, directing that owner or person within a reasonable time, to be specified in the notice, to take effectual means for extinguishing or screening the fire or light, and for preventing for the future any similar fire or light.

(2) The notice may be served either personally or by delivery at the place of abode of the person to be served, or by affixing the same in some conspicuous spot near to the fire or light to which the notice relates.

(3) Every owner or person on whom a notice is served under this section who fails without reasonable cause to comply with the directions contained in the notice commits an offence against this Act, and, in addition to any other penalties or liabilities he may incur, is liable for each offence to a fine not exceeding $200.

(4) If any owner or person on whom a notice under this section is served neglects for a period of 7 days to extinguish or effectually screen the fire or light mentioned in the notice, the Minister may, by his servants or workmen, enter upon the place where the fire or light is and forthwith extinguish the same, doing no unnecessary damage; and may recover the expenses incurred in so doing from the owner or person on whom the notice has been served in the same manner as fines may be recovered under this Act.

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